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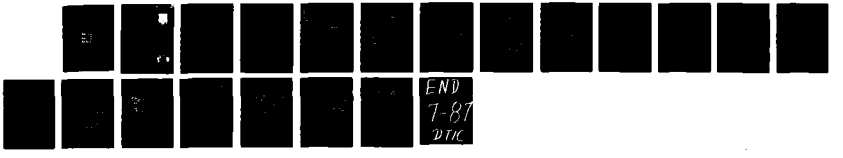

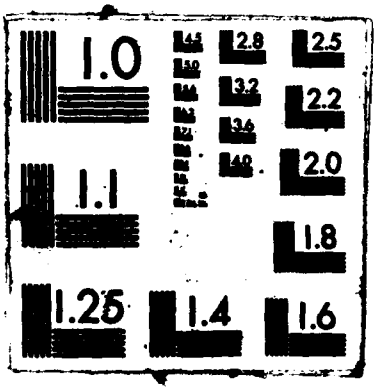
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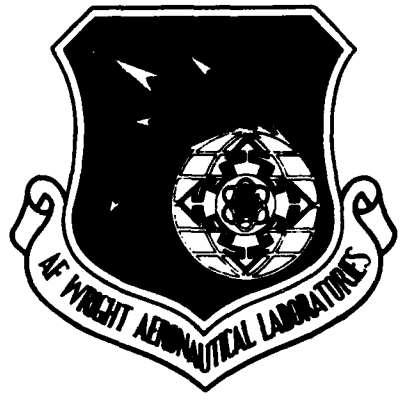

INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume III - IISS Configuration Management
Part 2 - System Administrator's Guide

General Electric Company
Production Resources Consulting
One River Road
Schenectady, New York 12345

Final Report for Period 22 September 1980 - 31 July 1985

November 1985

Approved for public release; distribution is unlimited.

PREPARED FOR:

MATERIALS LABORATORY
AIR FORCE WRIGHT AERONAUTICAL LABORATORIES
AIR FORCE SYSTEMS COMMAND
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This report has been reviewed by the Office of Public Affairs (ASD/PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

David L. Judson

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5 Aug 1986
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The Integrated Information Support System is a test computing environment used t
o investigate and demonstrate and test the concepts of information management an
d information integration in the contexts of Aerospace Manufacturing. Specifica
lly, IISS addresses the problems of integration of data resident on heterogeneou
s databases supported by heterogeneous computers, interconnected via a Local Are
a Network. A common Data Model is maintained and provides the mechanism require
d to integrate the data.

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19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This guide explains the functions performed by the System Administrator on the Test Bed. These functions include adding users, assigning privileges and quotas, and backup procedures.

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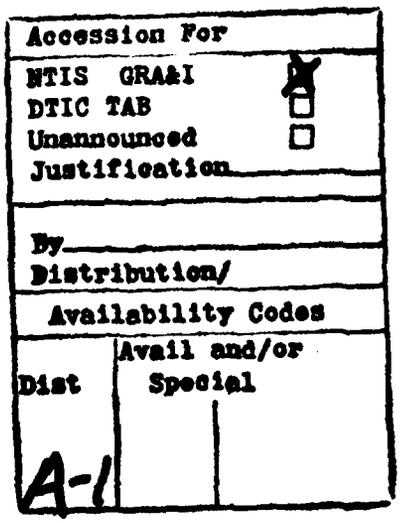

PREFACE

This system administrator's guide covers the work performed under Air Force Contract F33615-80-C-5155 (ICAM Project 6201). This contract is sponsored by the Materials Laboratory, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Gerald C. Shumaker, ICAM Program Manager, Manufacturing Technology Division, through Project Manager, Mr. David Judson. The Prime Contractor was Production Resources Consulting of the General Electric Company, Schenectady, New York, under the direction of Mr. Alan Rubenstein. The General Electric Project Manager was Mr. Myron Hurlbut of Industrial Automation Systems Department, Albany, New York.

Certain work aimed at improving Test Bed Technology has been performed by other contracts with Project 6201 performing integrating functions. This work consisted of enhancements to Test Bed software and establishment and operation of Test Bed hardware and communications for developers and other users. Documentation relating to the Test Bed from all of these contractors and projects have been integrated under Project 6201 for publication and treatment as an integrated set of documents. The particular contributors to each document are noted on the Report Documentation Page (DD1473). A listing and description of the entire project documentation system and how they are related is contained in document FTR620100001, Project Overview.

The subcontractors and their contributing activities were as follows:

TASK 4.2

Subcontractors	Role
Boeing Military Aircraft Company (BMAC)	Reviewer.
D. Appleton Company (DACOM)	Responsible for IDEF support, state-of-the-art literature search.
General Dynamics/ Ft. Worth	Responsible for factory view function and information models.

Subcontractors	Role
Illinois Institute of Technology	Responsible for factory view function research (IITRI) and information models of small and medium-size business.
North American Rockwell	Reviewer.
Northrop Corporation	Responsible for factory view function and information models.
Pritsker and Associates	Responsible for IDEF2 support.
SofTech	Responsible for IDEF0 support.

TASKS 4.3 - 4.9 (TEST BED)

Subcontractors	Role
Boeing Military Aircraft Company (BMAC)	Responsible for consultation on applications of the technology and on IBM computer technology.
Computer Technology Associates (CTA)	Assisted in the areas of communications systems, system design and integration methodology, and design of the Network Transaction Manager.
Control Data Corporation (CDC)	Responsible for the Common Data Model (CDM) implementation and part of the CDM design (shared with DACOM).
D. Appleton Company (DACOM)	Responsible for the overall CDM Subsystem design integration and test plan, as well as part of the design of the CDM (shared with CDC). DACOM also developed the Integration Methodology and did the schema mappings for the Application Subsystems.

Subcontractors	Role
Digital Equipment Corporation (DEC)	Consulting and support of the performance testing and on DEC software and computer systems operation.
McDonnell Douglas Automation Company (McAuto)	Responsible for the support and enhancements to the Network Transaction Manager Subsystem during 1984/1985 period.
On-Line Software International (OSI)	Responsible for programming the Communications Subsystem on the IBM and for consulting on the IBM.
Rath and Strong Systems Products (RSSP) (In 1985 became McCormack & Dodge)	Responsible for assistance in the implementation and use of the MRP II package (PICS) that they supplied.
SofTech, Inc.	Responsible for the design and implementation of the Network Transaction Manager (NTM) in 1981/1984 period.
Software Performance Engineering (SPE)	Responsible for directing the work on performance evaluation and analysis.
Structural Dynamics Research Corporation (SDRC)	Responsible for the User Interface and Virtual Terminal Interface Subsystems.

Other prime contractors under other projects who have contributed to Test Bed Technology, their contributing activities and responsible projects are as follows:

Contractors	ICAM Project	Contributing Activities
Boeing Military Aircraft Company (BMAC)	1701, 2201, 2202	Enhancements for IBM node use. Technology Transfer to Integrated Sheet Metal Center (ISMC).

Contractors	ICAM Project	Contributing Activities
Control Data Corporation (CDC)	1502, 1701	IISS enhancements to Common Data Model Processor (CDMP).
D. Appleton Company (DACOM)	1502	IISS enhancements to Integration Methodology.
General Electric	1502	Operation of the Test Bed and communications equipment.
Hughes Aircraft Company (HAC)	1701	Test Bed enhancements.
Structural Dynamics Research Corporation (SDRC)	1502, 1701, 1703	IISS enhancements to User Interface/Virtual Terminal Interface (UI/VTI).
Systran	1502	Test Bed enhancements. Operation of Test Bed.

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SECTION 1

ADMINISTRATOR'S GUIDE

There are many functions performed by the Test Bed System Adminstrator. These functions include creating new user accounts, assigning privileges and quotas, tape processing procedures, backup procedures, and ORACLE database procedures. These will be discussed in the following sections.

1. Adding New Accounts

There are four basic types of accounts that can be set up on the test bed. They are IISS development and integration, individual development, interested observers, and general access. When creating new accounts, it is necessary to evaluate the request and determine into which category the account will fall.

A) IISS development and integration account is used by authorized members within a sub-contractor group. Current IISS subsystem development and integration with other subsystems is done here. Files such as data, command, and form files will reside in this account. Only executables for the particular development subsystem will reside here; all other executables for the other subsystems reside in the production IISS (PIISS) area and IISS will point to them in that location.

1) Privileges and quotas - This type of account requires the privileges TMPMBX, NETMBX, and GRPNAM. The approximate disk quota required for file storage and IISS development is 50,000 blocks. The following are quotas which should be set when the account is created:

PRIO: 4	BYTLM: 99000	BIOLM: 12
PRCLM: 32	PBYTLM: 0	DIOLM: 12
ASTLM: 10	WSDEFAULT: 200	FILLM: 120
ENQLM: 300	WSQUOTA: 768	SHRFILLM: 0
TQELM: 30	WSEXTENT: 2048	CPU: NO LIMIT
MAXJOBS: 0	MAXACCTJOBS: 0	PGFLQUOTA: 50000

2) Unless specifically requested, these accounts do not require WPS-PLUS, word processing,

privileges.

3) Unless specifically requested, these accounts do not require Documentation Management privileges.

4) Because of the development status of these accounts, they should be set up with Configuration Management privileges. Many CM activities will take place directly from this account, such as checking out and returning files.

NOTE: Because of Group assignments and mailbox handling, it is recommended that only one IISS development/integration account be created within a group.

B) Individual development accounts are used by individuals contributing to the subsystem for which their sub-contractor group is responsible. Source and link files, as well as other development files may be located here. However, any files developed in this account should by moved to the main integration test area for the sub-system for thorough testing.

1) Privileges and quotas - This type of account requires the privileges TMPMBX and NETMBX. The approximate disk quota required for this type of account is 10000 blocks. Additional disk quota may be required in this type of account, based on the level of activity taking place here. The following are quotas which should be set when the account is created:

PRIO: 4	BYTLM: 8192	BIOLM: 6
PRCLM: 10	PBYTLM: 0	DIOLM: 6
ASTLM: 10	WSDEFAULT: 200	FILLM: 30
ENQLM: 200	WSQUOTA: 768	SHRFILLM: 0
TQELM: 10	WSEXTENT: 2048	CPU: NO LIMIT
MAXJOBS: 0	MAXACCTJOBS: 0	PGFLQUOTA: 10000

2) Unless specifically requested, these accounts do not require WPS-PLUS, word processing, privileges.

3) Unless specifically requested, these accounts do not require Documentation Management privileges.

4) Because of the development status of these accounts, they should be set up with Configuration Management privileges. CM activities will take place directly from this account, such as checking out and returning files.

C) Interested observers are accounts for individuals who wish to be kept informed of activities on the test bed. For the most part, activity in these accounts is limited to receiving and sending messages via the VAX MAIL facility.

1) Privileges and quotas - This type of account requires the privileges TMPMBX and NETMBX. The approximate disk quota required for this type of account is 10000 blocks. The following are quotas which should be set when the account is created:

PRIO: 4	BYTLM: 8192	BIOLM: 6
PRCLM: 10	PBYTLM: 0	DIOLM: 6
ASTLM: 10	WSDEFAULT: 200	FILLM: 30
ENQLM: 200	WSQUOTA: 768	SHRFILLM: 0
TQELM: 10	WSEXTENT: 2048	CPU: NO LIMIT
MAXJOBS: 0	MAXACCTJOBS: 0	PGFLQUOTA: 10000

2) Unless specifically requested, these accounts do not require WPS-PLUS, word-processing, privileges.

3) Unless specifically requested, these accounts do not require Documentation Management privileges.

4) Unless specifically requested, these accounts do not require Configuration Management privileges.

D) General access accounts are created for loading software packages onto the test bed, such as IDSS and MCMM. Due to the nature of the account, it is very difficult to set standards for their creation.

1) Privileges and quotas - Dependent upon the software to be loaded.

2) These accounts do not require WPS-PLUS, word-processing, privileges.

3) These accounts do not require Documentation Management privileges.

4) These accounts do not require Configuration Management privileges.

2. Tape Procedures

A) Procedures for loading tapes onto the test bed have been created. Below is the form which should be used when there is a need to load files onto the AF VAX. Fill in all information and submit the form, via mail, to the SYSTEM account, the account used for Operation requests. NOTE: Please number the tape and refer to this tape number in the form when notifying Operations. If a corresponding form has not been received by Operations when a tape is received, the tape will not be loaded.

The following is an explanation of the input necessary on the form:

(1) Enter the tape number which corresponds to the actual number on the tape sent to Operations.
(2) Enter date of request for tape load.
(3) Enter name of sub-contracting company making request.
(4) Enter name of person making request.
(5) Enter telephone number of requestor.
(6) Enter the name of the account on the AF VAX which is to receive the files from the tape, including disk name (e.g. IISS_DVLP:[GARV]).
(7) Enter the full command used to create this tape.
(8) Enter the total amount of disk space required to load tape.
NOTE: Be sure account has sufficient disk quota available before this request is made.

TAPE INFORMATION REQUIRED FOR LOADING A TAPE ON THE AF VAX

REQUEST:

(1)TAPE NUMBER:_____ (2)DATE OF REQUEST:_____
(3)SUBCONTRACTOR:_____ (4)NAME OF REQUESTOR:_____
(5)PHONE NUMBER:_____
(6)FULL NAME OF RECEIVING ACCOUNT:_____
(7)SPECIFIC COMMAND USED TO CREATE TAPE:_____
(8)DISK SPACE REQUIRED TO LOAD TAPE:_____
(9)TAPE INFORMATION:
    (a)DENSITY:_____
    (b)IF COPY - TAPE LABEL:_____
       IF BACKUP - SAVESET NAME:_____
       IF OTHER - METHOD USED:_____
       BLOCKSIZE:_____
       RECORD LENGTH:_____
       BLOCKING FACTOR:_____
          CHARACTER MODE:_____
(10)ACCOUNT ON AF VAX TO BE NOTIFIED:_____
(11)DISPOSITION OF TAPE:_____
NOTES:

RESPONSE:

DATE/TIME COMPLETED:_____ BY:_____
NUMBER OF FILES:_____ NUMBER OF BLOCKS:_____
NOTIFIED REQUESTOR-TIME/DATE:_____
NOTES:

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(9) Enter the density of the tape (e.g. 1600 bpi). If the tape was created using COPY, then enter the tape label. If the tape was created using BACKUP, then enter the saveset name. If the tape was created using some other method, enter

- Method used
- Blocksize
- Record length
- Blocking factor
- Character mode (EBCDIC/ASCII)

(10) Enter the username of the account which should be notified upon completion of this request.
(11) Enter your choice for disposition of tape [e.g., return to requestor (please list address), scratch tape, store in tape archives until specific date (please give date)].

B) To have a tape made of information on the test bed, send a message, via VAX MAIL, to the SYSTEM account with the following information:

1) List specific files to be copied to tape, including the drive, directory, subdirectory, and file names.
2) Specify preference for procedure to be used to create the tape: BACKUP or COPY (default is BACKUP).
3) Unless otherwise specified, a 1600 bpi tape will be created.
4) Specify name and mailing address where tape should be shipped. Be sure to specify a street address since overnight carriers will not deliver to a post office box.

3. Backup Procedures

In order to insure that all aspects of IISS can be recreated in the event of equipment failure, several backup procedures have been developed on the testbed. These procedures will copy files to tapes or disks, which are then stored appropriately at on and off-site locations.

A) The daily incremental backup to tape (BACKUP.COM) is performed every morning to capture all file

activity for the preceding day. A series of two weeks of these daily incrementals is kept in the tape archives. The system is available to all users during this backup procedure.

B) The weekly image backup to disk is performed Thursday nights and takes 5-6 hours to complete. The procedure is to be run with no other users on the system, thus capturing all files and insuring file integrity. All five disks are backed-up to disks mounted on DRA1.

C) The weekly incremental backup to tape is run Friday evening. Duration is determined by file activity during the previous week. This procedure captures all file activity for the preceding week. The system is available to all users during this backup procedure.

D) The Configuration Management accounts are backed-up to tape on a weekly basis. The accounts SIISS, CMDB, and NIISS contain all of the source code necessary to rebuild IISS or recreate old IISS releases. A full backup of files in these accounts is put to tape, a log is created, and the log is sent to the system administrator for verification of successful completion.

4. General Access Areas

The system access areas, as previously mentioned, contain products which have been loaded onto the test bed. This software is available for general use by all users of the system. Protections are set so all of the necessary executables, data, and symbols are available to all test bed users. The access areas include MCMM, IDSS, and PP&CS.

5. ORACLE Database Administration

There are currently two versions of ORACLE on the test bed computer. ORACLE version 3.0.12 is installed system-wide. This installation was used for IISS Release 1.8 and previous versions. ORACLE version 4.2.2 is installed group-wide and has been used for IISS Release 2.0, the current release.

A) For ORACLE installation procedures, refer to the ORACLE System Administrators Guide.

B) Multiple Environment - Since there are many devlopment areas for IISS, there should also be multiple database environments. Each IISS development/integration account should have an associated database environment to insure data integrity. Starting with IISS Release 2.0, all of the database environments exist under one group (063). Individual databases should be created (refer to the ORACLE System Administrators Manual), initialized and have data imported or entered in some manner. For subsequent IISS releases, it is the responsibility of the database administrator for the related IISS development area to keep the database current.

C) User Access - Several group-wide logicals must be defined by the IISS development/integration account. Note that the assignment of these group logicals should never be made from the ORACLE database environment account. This will effect all database users in such a way that will cause all database activity to access and update the database environment specified in the group logical.

7. Files

All accounts are created with the following feature: only five versions of any file will exist at a given time. This means that when the sixth version of a file is created, the earliest version of that file will automatically be deleted. All current users are aware of this feature.

8. Helpful Hints For IISS

When IISS developers report strange results, check the following items for possible solutions.

A) Verify that the user is running from an authorized IISS development/integration account.

B) Verify that the user has sufficient disk quota. To run IISS, the user will need at least 12-15,000 blocks of disk quota unused on thier account.

C) Verify that the database that the user is attempting to access has been warm-started and is running. By entering SHOW SYSTEM, the version of ORACLE should have four ORACLE$ processes running. Check logicals to be certain they are pointing to the database environment that they should be accessing.

D) To run the User Interface, verify that a file named (.;) exists containing only a carriage return.

E) Verify that all logicals are pointing to the correct sub-directory for the necessary executables, forms, etc. Verify that the correct disk name is also specified.

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